GPUpartner

VALIDATION REPORT · TEXT GENERATION

MiniMax M3

on RTX 5090 · 4-bit (Q4_K_M) · Ollama / LM Studio · Chat

STATUS · OCT 22, 2026

Not validated

0 of 2 checks pass

MiniMax M3 at 4-bit needs 243 GB; the RTX 5090 can use 32.0 GB. The smallest machine we checked that runs it is the H200 NVL.

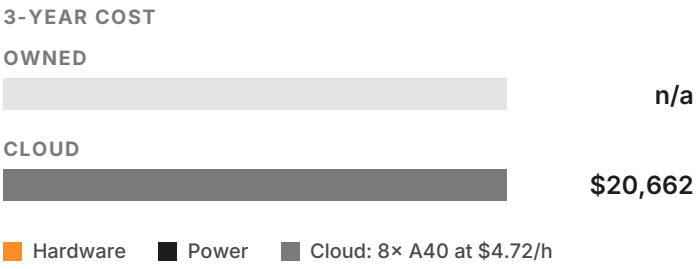
VALIDATION

CHECK	TARGET	RESULT	STATUS
Fits in GPU memory	32.0 GB usable	243 GB needed	FAIL
Headroom	5% free	none	FAIL
Context for chat	16K or more	–	NOT TESTED
Writing speed	15 tok/s or more	–	NOT TESTED
First reply	under 3 s, 2K prompt	–	NOT TESTED

Targets: a reply you can read along with, a first reply the use case tolerates, and 5% of memory left free. Calculated from published specs, not benchmarked.

BUDGET

HARDWARE, ONE-TIME	MSRP not entered
POWER, PER YEAR	Doesn't run on this machine
CLOUD INSTEAD, PER YEAR	$6,887
3-YEAR TOTAL, OWNED	n/a
3-YEAR TOTAL, CLOUD	$20,662
BREAK-EVEN	n/a



Budget basis: 4 h a day, power at $0.18 per kWh, cloud at RunPod on-demand prices as of Oct 22, 2026. Hardware at the MSRP entered in the calculator, not a GPU Partner quote. A 3-year view; resale value, staff time and taxes aren't counted.

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TECHNICAL DETAIL · TEXT GENERATION

MiniMax M3

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SETUP

PARAMETERS	427B, 23B active
PRECISION	4-bit (Q4_K_M)
CONTEXT	8K, auto
CHATS AT ONCE	1
USE	Chat
RUNS IN	Ollama / LM Studio
HARDWARE	RTX 5090
GPU CAN USE	32.0 GB of 32.0 GB

MEMORY

WEIGHTS	241 GB
CONTEXT	960 MB
RUNTIME	1.0 GB
SYSTEM	0.0 GB
OVER BY	211 GB

SUGGESTED CHANGES

2× H200 NVL	Runs it with 208K context
4× RTX PRO 5000 BLACKWELL 7...	Runs it with 248K context
M5 ULTRA · 512 GB	Runs it with 1M context

SAME MODEL, OTHER MACHINES

RTX 4090	Too big
RTX PRO 6000 BLACKWELL	1.6-bit · 135 tok/s
M5 MAX 128 GB	1.6-bit · 53 tok/s
M3 ULTRA 256 GB	2-bit · 41 tok/s
DGX SPARK 128 GB	1.6-bit · 35 tok/s
RYZEN AI MAX+ 395 128 GB	1.6-bit · 28 tok/s
DGX STATION GB300	3-bit · 171 tok/s

HOW TO RUN IT

LLAMA.CPP	`llama-server -hf unsloth/MiniMax-M3-GGUF`
VLLM	`vllm serve MiniMaxAI/MiniMax-M3`
MLX (MAC)	`mlx_lm.chat --model mlx-community/MiniMax-M3-4bit`
MODEL CARD	huggingface.co/MiniMaxAI/MiniMax-M3

METHOD AND ASSUMPTIONS

Memory is the weights (parameters times bits per weight, read from each model's config.json), the context cache for every chat, and the runtime, against the memory this GPU can use after the OS and display take theirs. Writing speed is memory bandwidth over the bytes read per token, plus a per-layer latency, calibrated against llama.cpp benchmarks. First reply is the prompt's FLOPs over the chip's dense 16-bit TFLOPS at the runtime's measured efficiency. Running cost is power at the wall at your rate and hours; the cloud figure is the cheapest RunPod on-demand GPU that runs the same job. Accuracy: memory lands within about a gigabyte; speeds and times are rough, about ±25%. Model data and hardware specs checked Oct 2026; cloud prices are RunPod's on-demand list as of Oct 22, 2026. Report VR-1U5K6OV, generated October 22, 2026.